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APPENDIX M. Definitions

Acceptable Risk. The risk that is understood and agreed to by the program/project, GPMC, Mission Directorate (or Mission Support Office), the TWH (for safe and reliable operations), and other customer(s) sufficient to achieve the defined success criteria within the approved level of resources.

Acquisition. The acquiring, by contract, of supplies or services (including construction) through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, or evaluated. Acquisition begins at the point when Agency needs are established and includes the description of requirements to satisfy Agency needs, solicitation, and selection of sources, award of contracts, contract financing, performance, administration, technical, and management functions directly related to the process of fulfilling Agency needs by contract.

Acquisition Team. All participants in Government acquisition, including not only representatives of the technical, supply, and procurement communities, but also the customers they serve.

Activity. Any of the program and project management components that are executed in order to complete the four-part management process.

Advocacy Chain. Any person that has a vested interest in the outcome of a particular program or project.

Agency Program Management Committee (Agency PMC). The senior management group, chaired by the Deputy Administrator or the Administrator's designee, responsible for reviewing program formulation performance, recommending approval of proposed programs, and overseeing implementation of designated programs and projects according to Agency commitments, priorities, and policies.

Allowance for Program Adjustment (APA). Fiscal resources available for approved changes in program objectives or scope that are documented in the PCA, the resolution of unforeseen major problems, program/project stretch outs from Agency funding shortfalls, and similar fiscal events.

Analysis of Alternatives. A formal analysis method that compares alternatives by estimating their ability to satisfy mission requirements through an effectiveness analysis and by estimating their life cycle costs (LCC) through a cost analysis. The results of these two analyses are used together to produce a cost-effectiveness comparison that allows decision-makers to assess cost and effectiveness simultaneously. An AoA broadly examines multiple elements of program/ project alternatives (including technical performance, risk, LCC, and programmatic aspects), and is typically an important part of formulation studies. The terms, trade studies, trades, and tradeoff analyses, are often used in lieu of AoA, when the scope of the analysis is more limited.

Anomaly. An unexpected event, hardware or software damage, a departure from established procedures or performance, or a deviation of system, subsystem, and/or hardware or software performance outside certified or approved design/performance specification limits.

Approval. The process used to initially decide on a program/project's readiness to proceed from formulation into

implementation and subsequently used to approve changes to the program/project baseline.

Assure. Making certain that specified activities performed by others are performed in accordance with specified requirements.

Baseline. The technical performance and content, technology application, schedule milestones, and budget (including contingency and APA) which are documented in the approved Program and Project Plans.

Breach. Project growth above 10% of the NAR Baseline or a failure to meet a KPP. Commercialization. Identify opportunities for establishing partnerships with the private sector, academia, and other government organizations to conduct dual-use research, develop mutually beneficial technologies, and transfer results into NASA for mission use and the private sector for commercial application. Component Facilities. Complexes that are geographically separated from the NASA Center or institution to which it is assigned.

Configuration Management. A management discipline applied over the product's life cycle to provide visibility and to control performance and functional and physical characteristics.

Confirmation Review. The equivalent of the NAR for AO-driven flight development projects.

Contingency. Reserves, including funding, schedule, performance, manpower, and services, allocated to and managed by the Program/Project Manager for the resolution of problems normally encountered to mitigate risks while ensuring compliance to the specified program/project scope.

Continuous Cost-Risk Management (CCRM). A multi-step approach to cost estimating and project cost management that seeks to integrate the various project management activities that involve cost and cost risk. CCRM encompasses the following: cost-effectiveness trades (where CAIV is a subset), detailed project definitions (CADRe development) and probabilistic, risk-based Life Cycle Cost Estimates (project cost S-curve) documented in the CADRe; disciplined cost and schedule rebaselining; Earned Value Management for continuous management and reporting of risky WBS elements; periodic updates of the CADRe for continual reassessment of project cost performance; and end-of-project data collection and storage in the One NASA Cost Engineering (ONCE) database for cost analysis improvement. CCRM emphasizes that the high-risk elements in the WBS most likely to cause adverse cost and schedule impacts are the common focus of these activities.

Continuous Risk Management (CRM). The process that identifies risk; analyzes their impact and prioritizes them; develops and carries out plans for risk mitigation or acceptance; tracks risk and the implementation of plans; supports informed, timely, and effective decisions to control risks and mitigation plans; and assures that risk information is communicated and documented.

Contract. A mutually binding legal relationship obligating the seller to furnish the supplies or services (including construction) and the buyer to pay for them. In addition to bilateral instruments, contracts include, but are not limited to, awards and notices of awards; job orders or task letters initiated under basic ordering agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications.

Cost Analysis Data Requirement (CADRe). A formal document to understand the cost and cost risk of space flight projects. The CADRe consists of a Part A "Narrative", a Part B "Technical Data" in tabular form, and a Part C "Project Life Cycle Cost Estimate." Part C is not provided to the ICE team.

Crosscutting Technology. That which is generally applicable to multi-missions and focuses on the earlier stages of the life cycle.

Customer. Any individual, organization, or other entity to which a program or project provides a product(s) and/or service(s).

Data Requirement Description (DRD). A document inserted into an RFP and contract requiring data (e.g., EVM Contract Performance Report (CPR); CADRe; IMS; Risk Management Plans and Reports; etc.). A DRD can describe tailoring to a standard (e.g., EVM CPR Data Item Description (DI-MGMT-81466) or be a stand-alone data requirement if there is no underlying standard (e.g., CADRe).

Deviation. A documented agreement intentionally releasing a program or project from meeting a requirement. (Some Centers use deviations prior to Implementation, and waivers during Implementation.)

Earned Value Management (EVM). A tool for measuring and assessing project performance through the integration of technical scope with schedule and cost objectives during the execution of the project. EVM provides quantification of technical progress, enabling management to gain insight to project status and project completion costs and schedules. Two essential characteristics of successful EVM are EVM system data integrity and carefully targeted monthly EVM data analyses (i.e., risky WBS elements).

Enabling Systems. Those systems that while not a functioning part of the intended system- of- interest are nevertheless required for its proper achievement. Enabling systems (e.g., the production system, deployment system, training system, and maintenance system) facilitate the progression of the system-of-interest through its life

cycle. Since the system-of-interest and its enabling systems are interdependent, they can also be viewed as a system. Program/project responsibility thus extends to responsibility for acquiring services from the relevant enabling systems in each life- cycle phase. When a suitable enabling system does not already exist, the program/project that is responsible for the system-of-interest can also be responsible for creating and using the enabling system.

Ensure. Performing specified activities in accordance with requirements for that activity.

Enterprise Architecture. An explicit description and documentation of the current and desired relationships among business and management processes and information technology. An Enterprise Architecture includes principles, an architecture framework, a technical standards profile, current and target architectures, and a transition strategy to move from the current to target architecture.

Environmental Impact. The direct, indirect, or cumulative beneficial or adverse effect of an action on the environment.

Environmental Management. The activity of ensuring that program and project actions and decisions which potentially impact or damage the environment are assessed/evaluated during the formulation/planning phase and reevaluated throughout implementation and performed according to all NASA policy and Federal, state, and local environmental laws and regulations.

Estimate at Completion. The sum of project actual costs to date, estimated costs to complete (ETC), and reserves. Contractor financial information is included in the project Estimate at Completion.

Evaluation. The process used to provide independent assessments of the continuing ability of the program/project to meet its technical and programmatic commitments. Evaluation also provides value-added assistance to the program/project managers.

Evolutionary Acquisition. A strategy for rapid acquisition of mature technology. An evolutionary acquisition approach delivers a functional capability in increments, recognizing upfront the need for future capability improvements. The objective of the approach is to balance needs and current capability against resources, and to put additional capability into use quickly. Spiral development is one way to execute an evolutionary acquisition strategy.

Formulation. The process used to define the program/project concept and plan to meet customer requirements.

Formulation Authorization Document (FAD). The document issued by the MDAA (or MSOD) to authorize the level of formulation of a program whose goals will fulfill part of the Agency's Strategic Plan, Mission Directorate Strategies, or Mission Support Office Functional Leadership Plans. In addition, a FAD or equivalent is used to authorize the level of formulation of a project.

Full Cost. The entire cost to the Agency to conduct a program or project. Full cost includes not only directly attributable costs such as cost of a program's associated contracts but also an appropriate share of Center and Agency-wide overhead costs and the costs of any shared services that the program or project uses. Full cost budgeting, managing, and accounting increases management's visibility over available resources and promotes informed tradeoffs within the overall budget envelope to maximize program and project results.

Full Operational Capability (FOC). The full attainment of the capabilities to employ an item of equipment, or system of approved specific characteristics, operated and supported by a trained workforce.

Goal Value. The quantitative KPP performance level that the project team is striving for.

Governing Program Management Committee (GPMC). The highest level PMC that has the responsibility to regularly review a program or project.

Implementation. The process used to deliver the products and capabilities specified in the approved Program/Project Plan.

Independent Assessment (IA). The general term referring to an evaluation of a program or project conducted by experts outside the advocacy chain. The evaluation results in an assessment of the program's or project's readiness (technical, schedule, cost, risk) to proceed to the next phase in the lifecycle that is reported to a GPMC.

Independent Cost Analysis (ICA). An independent analysis of program/project resources associated with the program/project content, conducted by an impartial body independent from the management or advocacy of the program/project. ICA includes, but not limited to, the assessment of cost estimates, budget, and schedule in relation to program/project technical performance and risk. ICA may include an independent cost estimate (ICE), assessment of resource distribution and planning, and verification of cost estimating methodologies.

Independent Cost Estimate (ICE). A program/project cost estimate prepared by an office or other entity that is not under the supervision, direction, advocacy, or control of the program/project that is responsible for carrying out the development or acquisition of the program/project. An ICE is bounded by the program/project scope, schedule,

technical content, risk, ground rules and assumptions and conducted with objectivity and the preservation of integrity of the cost estimate.

Independent Program Assessment Office (IPAO). The NASA organization responsible for scheduling, organizing, and conducting the independent reviews (Concept Decision Review, Preliminary Non-Advocate Review, Non-Advocate Review, and Production Review) for programs and projects reporting to the Agency PMC.

Independent Review Team. The general term used to refer to an independent group of individuals outside the advocacy chain of a program or project that is charged with conducting an independent program or project review. The IRT can refer to an IPAO, SMO or third party team.

Independent Technical Authority (ITA). Technical Authority is the authority, responsibility, and accountability to establish, approve, and maintain technical requirements, processes, and policy. The execution of technical authority in support of mission-related programs and projects without organizational or financial control by such program and/or projects.

Independent Verification and Validation (IV&V). A process whereby the products and processes of the software development life-cycle phases are reviewed, verified, and validated by an organization that is neither the developer nor the purchaser of the software, which is defined by two parameters - technical independence and managerial independence. Technical independence engages personnel who are not involved in the development activities. Managerial independence requires responsibility for the IV&V effort to be vested in an organization separate from the organization responsible for development.

Information Technology. Hardware and software operated by a Federal agency or by a contractor of a Federal agency or other organization that processes information on behalf of the Federal Government to accomplish a Federal function, regardless of the technology involved, whether by computers, telecommunications systems, automatic data processing equipment, or other.

Infrastructure Requirements. The real property/facilities, aircraft, personal property/equipment, and information technology resources, that are required to support programs and projects. Utilization of the capability afforded by the infrastructure includes full lifecycle cost, including operations, sustainment, disposal, environmental impacts and other liabilities it presents.

In-House Project. One that is conducted onsite or in the immediate vicinity of a NASA Center in which most major technical, business, and management tasks are performed primarily by the Center's civil service workforce.

Initial Operating Capability (IOC). The first attainment of the capability to employ an item of equipment, or a system of approved specific characteristics, operated and supported by a trained workforce.

Institutional Requirements. Infrastructure and workforce required to support programs and projects. Specifically, the human resources, real property/facilities, aircraft, personal property/equipment, and information technology resources required to support programs and projects.

Integrated Baseline Review (IBR). An IBR is a formal project-level review that includes total project (contracted as well as in-house NASA) efforts. It is conducted jointly with personnel responsible for the efforts. Specifically, an IBR verifies that the technical content of the performance measurement baseline is consistent with the contract scope, work breakdown structure, and actual budget and schedule; ensures that effort personnel have identified all risks and are aware of their responsibilities for their management; ensures that there is a logical sequence of effort planned consistent with the contract schedule; ensures the disciplined implementation of all project Earned Value Management Systems (EVMS); establishes a forum through which the Program/Project Manager and the technical staff gain a sense of ownership of the cost/schedule management process; and establishes the baseline for the life of the contract.

Integrated Master Schedule. An IMS includes a baseline master schedule and derivative schedules which provide the framework for time phasing and coordinating all project efforts into a master plan to ensure that objectives are accomplished within program or project commitments. The IMS baseline also serves as the basis for development of the Performance Measurement Baseline (PMB) utilized in earned value management (EVM).

Investigation. A research activity that is directed by a PI according to an approved research design.

Iterative Processes. A systems engineering concept in which any or all of the systems engineering processes may need to be performed repetitively during a system's lifecycle. For example, requirements definition may occur at a high level during formulation, and again at progressively lower levels in implementation. Even though it occurs at different phases in the system lifecycle, the same process is applied.

Key Performance Parameters (KPPs). Those capabilities or characteristics (typically engineering-based or related to safety or operational performance) considered most essential for successful mission accomplishment. Failure to meet a KPP threshold can be cause for the project, system, or advanced technology development to be reevaluated or terminated. Failure to meet a KPP threshold can be cause for the system-of-systems concept to be reassessed or the contributions of the individual systems to be reassessed. A project's KPPs are identified and quantified in the

Project Baseline.

Lesson Learned. The significant knowledge or understanding gained through past or current programs and projects that is documented and collected to benefit current and future programs and projects.

Life-Cycle Cost (LCC). The total of the direct, indirect, recurring, nonrecurring, and other related expenses incurred, or estimated to be incurred, in the design, development, verification, production, operation, maintenance, support, and disposal of a project. Life-cycle cost (LCC) of a project or system can also be defined as the total cost of ownership over the project's or system's life cycle from formulation through implementation. It includes all design, development, deployment, operation and maintenance, and disposal costs.

Logistics. The management, engineering activities, and analysis associated with design requirements definition, material procurement and distribution, maintenance, supply replacement, transportation, and disposal which are identified by flight and ground systems supportability objectives.

Margin. The allowances carried in budget, projected schedules, and technical performance parameters (e.g., weight, power, or memory) to account for uncertainties and risks. Margin allocations are baselined in the formulation process, based on assessments of risks, and are typically consumed as the program/project proceeds through the life cycle.

Metric. A measurement taken over a period of time that communicates vital information about a process or activity. A metric should drive appropriate action.

Mission. A major activity required to accomplish an Agency goal or to effectively pursue a scientific, technological, or engineering opportunity directly related to an Agency goal. Mission needs are independent of any particular system or technological solution.

Mission Assurance (Activities). The activities that are necessary to 1) check whether a product or service being developed meets specified mission technical requirements, and 2) to provide confidence in the program or project's ability to achieve mission success.

Mission Success (Activities). Those activities performed in line and under the control of the program or project that are necessary to provide assurance that the program or project will achieve its objectives. The mission success activities will typically include risk assessments, system safety engineering, reliability analysis, quality assurance, electronic and mechanical parts control, software validation, failure reporting/resolution, and other activities that are normally part of a program or project work structure.

Mission Success Criteria. Standards against which the program or project will be deemed a success. Mission success criteria may be both qualitative and quantitative, and may cover mission cost, schedule, and performance results as well as actual mission outcomes.

Non-Advocate Review (NAR). The analysis of a proposed program or project by a (non-advocate) team composed of management, technical, and budget experts (personnel) from outside the advocacy chain of the proposed program or project. It provides Agency management with an independent assessment of the readiness of the program/project to proceed into implementation.

NAR Baseline. Final quantitative values of each key performance parameter, funding, and schedule established at the NAR approval of a project.

Occupational Health. The promotion and maintenance of physical and mental health in the work environment.

Peer Review. Peer review means independent evaluation by internal or external subject matter experts who do not have a conflict of interest.

Performance-Based Contracting. Structuring all aspects of an acquisition around the purpose of the work to be performed as opposed to either the manner by which the work is to be performed or broad and imprecise statements of work.

Performance Measurement Baseline. The time-phased budget plan against which contract execution is measured. It is formed by the budgets assigned to scheduled control accounts and the applicable indirect budgets. For future effort, not planned to the control account level, it also includes budgets assigned to higher level contractor work breakdown structure elements and undistributed budgets. It equals the total allocated budget less management reserves.

Portfolio. A collection of investments in strategies, such as R&D investigations, managed to further a common goal or goals. Primary Risks. Those undesirable events having both high probability and high impact/severity.

Principal Investigator. Leader of relatively small basic or applied research activity which is part of a larger portfolio of research investments. In some cases, principal investigators from industry and academia act as project managers for development efforts with NASA personnel providing oversight.

Probabilistic Risk Assessment (PRA). A comprehensive, structured, and logical analysis method aimed at

identifying and assessing risks in complex technological systems for the purpose of cost-effectively improving their safety and performance in the face of uncertainties. PRA assesses risk metrics and associated uncertainties relating to likelihood and severity of events adverse to safety or mission.

Program. A strategic investment by a Mission Directorate (or Mission Support Office) that has defined goals, objectives, architecture, funding level, and a management structure that supports one or more projects.

Program Commitment Agreement (PCA). The contract between the Administrator and the cognizant MDAA (or MSOD) for implementation of a program.

Program Implementation Review (PIR). A program review conducted by the IPAO after the NAR approval that assesses the program's continued consistency with NAR Baseline commitments (performance, safety, cost, and schedule) in a PCA, Program Plan, and/or Project Plans. The results of this review are reported to the Agency PMC. PIRs are nominally scheduled at approximately two-year intervals during implementation.

Program (or Project) Management Committee (PMC). One of the hierarchy of forums, composed of senior management, that assesses program or project planning and implementation, and provides oversight and direction as appropriate. These are established at the Agency, Mission Directorate, Center, and lower levels.

Program Operating Plan (POP). A document produced by a Center in response to Headquarters-directed budget guidelines, including requested budgets by program or project.

Program Plan. The document that establishes the baseline for implementation, signed by the MDAA (or MSOD), Center Director, and Program Manager.

Program (Project) Team. All participants in program (project) formulation and implementation. This includes all direct reports and others that support meeting program (project) responsibilities.

Project. A specific investment identified in a Program Plan having defined goals, objectives, requirements, life-cycle cost, a beginning, and an end.

Project Plan. The document that establishes the baseline for implementation, signed by the cognizant Program Manager, Center Director, and Project Manager.

Quality Assurance. A planned and systematic set of actions necessary to provide confidence that the products or services conform to documented requirements.

Requirements Review (RR). An assessment, during the formulation process, of the completeness, consistency, and achievability of the project objectives and requirements, including those specified in the FAD. The RR covers, as applicable, mission, project, science, operational, flight system and ground system requirements, including cost and schedule. The RR is conducted prior to the initiation of preliminary design.

Reserves. The APA and contingency resources.

Resources Management. A function that is composed of planning and monitoring implementation of cost, workforce, and facility requirements; correlating these requirements to technical and schedule performance; and comparing these parameters to baselines established for the program and projects. This function establishes, monitors, and updates budget development and execution and contractor financial reporting.

Risk. The combination of the probability that a program or project will experience an undesired event (some examples include a cost overrun, schedule slippage, safety mishap, health problem, malicious activities, environmental impact, failure to achieve a needed scientific or technological breakthrough or mission success criteria) and the consequences, impact, or severity of the undesired event, were it to occur. Both the probability and consequences may have associated uncertainties.

Risk Assessment. An evaluation of a risk item that determines (1) what can go wrong, (2) how likely is it to occur, and (3) what the consequences are.

Risk Management. An organized, systematic decision making process that efficiently identifies, analyzes, plans, tracks, controls, communicates, and documents risk to increase the likelihood of achieving program/project goals.

Root Cause. One of multiple factors (events, conditions, or organizational factors) that contributed to or created the proximate cause and subsequent undesired outcome and, if eliminated or modified, would have prevented the undesired outcome. Typically, multiple root causes contribute to an undesired outcome.

Safety. Freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

Schedule Management. The establishment, monitoring, and maintenance of the baseline master schedule and derivative detailed schedules. It is composed of the establishment and operation of the system and includes (1) definition of format, content, symbology, and control processes, and (2) selection of key progress milestones and indices for measuring program and project performance and indicating problems.

Security. Protection of people, property, and information assets owned by NASA which covers physical assets, personnel, IT, communications, and operations.

Spiral Development. A form of evolutionary acquisition in which a desired goal or functional capability is identified, but the end-state requirements are not known at the outset. Those requirements are refined through test and demonstration, risk management, and continual user/operator feedback. Each spiral is an incremental step toward the desired goal or functional capability. Spiral development is seen as an approach to rapidly field systems incorporating the latest available technologies resulting from technology maturation investments. In spiral development, the product to be delivered is not specified at the outset, but instead, contractors and the Agency work in partnership to find the best way to meet the desired goal or functional capability.

Stakeholder. An individual or organization having an interest (or stake) in the outcome or deliverable of a program or project.

Success Criteria. That portion of the top-level requirements that define what will be achieved to successfully satisfy the Strategic Plan objectives addressed by the program, project, or technology demonstration.

Surveillance (Project Evaluation Context). An on-going assessment after the NAR approval conducted by the designated IA organization that examines project performance against the NAR Baseline. Adverse trends are reported to the GPMC.

Surveillance (Acquisition Context). The continual monitoring and verification of status of an entity and analysis of records to ensure that specified requirements are being met. Surveillance can be performed in an insight, oversight, or a combined mode, using a risk-based decision process.

System. The combination of elements that function together to produce the capability required to meet a need. The elements include all hardware, software, equipment, facilities, personnel, processes, and procedures needed for this purpose.

System-of-Interest. A system whose life-cycle engineering and technical management processes are the subjects of this document. The definition of a particular system- of-interest to be engineered depends on the practitioner's responsibilities, scope of assignment, and interest. For example, within a hierarchy of systems, one person's system-of-interest may be viewed as an element in another person's higher-level system-of-interest.

Systems Engineering. A disciplined approach for the definition, implementation, integration and operation of a system (product or service). The emphasis is on achieving stakeholder functional, physical and operational performance requirements in the intended use environments over its planned life within cost and schedule constraints. Systems engineering includes the engineering processes and technical management processes that consider the interface relationships across all elements of the system, other systems or as a part of a larger system.

System-of-Systems. A set or arrangement of independent systems that are related or connected to provide a given capability. The loss of any part of the system (-of-systems) will degrade the performance or capabilities of the whole. Typically a system will be called a system-of-systems when the component systems achieve well-substantiated purposes in their own right even if detached from the overall system; and when the component systems are managed in large part for their own purposes rather than the purposes of the whole.

Systems Management Office. The Center organization responsible for independent review and assessment of programs and projects during formulation and implementation, whose findings are reported to the Center GPMC.

Tailoring. The documentation and approval of the adaptation of the process and approach to complying with requirements underlying the specific program or projects. The results of this activity are documented in the FAD, PCA, Program Plan, and/or Project Plan.

Technical Warrant Holder. The person authorized to exercise delegated Technical Authority from the NASA Chief Engineer.

Termination Review. An analysis by the GPMC or by an independent assessment board, i.e., IPAO or SMO, for the purpose of securing a recommendation as to whether to continue or terminate a program or project. Exceeding the parameters or levels specified in controlling documents will result in GPMC consideration of a termination review.

Terms of Reference. A formal agreement between a Mission Directorate (or Mission Support Office) and an IA organization specifying the nature, scope, schedule, and ground rules for a program or project independent assessment.

Threshold Value. The minimum quantitative KPP performance level that the MDAA (or MSOD) and Program Manager agree is acceptable for the system-of-interest or end item deliverable.

Trade Study. A technique for comparing alternatives for the purpose of deciding which of them is preferred. Trade studies (also known as trade-off analyses) support decisions throughout the systems engineering process, including (but not limited to) functional allocation choices, performance requirements definition, physical architecture and

design choices, technology selection, and risk management. Trade studies may be formal, as in the case of an Analysis of Alternatives (AoA), or informal using engineering judgment or "back-of-the-envelope" analyses, but in either case, the selection of the preferred alternative is based on specific quantitative criteria.

Trusted Agent. A NASA civil servant (or JPL employee) chosen by a System Technical Warrant Holder to assist on technical decisions, deviations, and waivers affecting safe and reliable operations.

Validated Requirements. A set of requirements that are well-formed (clear and unambiguous), complete (agrees with customer and stakeholder needs and expectations) and consistent (conflict-free); and each requirement is verifiable and traceable to a higher-level requirement or goal.

Validation. Proof that the product accomplishes the intended purpose. May be determined by a combination of test, analysis, and demonstration.

Verification. Proof of compliance with specifications. May be determined by a combination of test, analysis, demonstration, and inspection.

Waiver. A documented agreement intentionally releasing a program or project from meeting a requirement. (Some Centers use deviations prior to Implementation, and waivers during Implementation.)

Work Breakdown Structure (WBS). A product-oriented hierarchical division of the hardware, software, services, and data required to produce the program/project's end product(s), structured according to the way the work will be performed, and reflective of the way in which program/ project costs, schedule, technical and risk data are to be accumulated, summarized, and reported.

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